



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

JUN 16 2011

REPLY TO THE ATTENTION OF:

E-19J

Todd Stribley
U.S. Department of Energy
Loan Guarantee Program (LP-10)
1000 Independence Avenue, SW
Washington, D.C. 20585

Re: Adoption - Final Environmental Impact Statement for the Proposed American Centrifuge Plant in Piketon, Ohio – CEQ 20110153

Dear Mr. Stribley:

In accordance with Section 309 of the Clean Air Act and the National Environmental Policy Act (NEPA), the U.S. Environmental Protection Agency has reviewed the Final Environmental Impact Statement (EIS), issued as an adopted document by the U.S. Department of Energy (DOE) from the U.S. Nuclear Regulatory Commission (NRC), for the project listed above.

The DOE is proposing to issue a loan guarantee to USEC Inc. to support funding for the American Centrifuge Plant (ACP), a gas centrifuge uranium enrichment facility, in Piketon, Ohio. The facility would be located on the existing DOE Portsmouth Reservation. The enriched uranium produced at the ACP would be used to manufacture nuclear fuel for commercial nuclear power reactors.

In August 2004, prior to DOE Loan Programs Office involvement in the ACP project, USEC, Inc. submitted a license application for construction, operation and decommissioning of the ACP to NRC. NRC prepared an EIS; the Final EIS was issued in April 2006 and EPA provided comments on June 19, 2006. NRC responded to EPA's comments in a letter dated January 3, 2007. NRC's letter was not included in the DOE's adopted Final EIS, but is enclosed with this letter. On April 13, 2007, NRC granted the license, which constitutes the Record of Decision (ROD) for the NRC EIS.

Based on the review of the NRC EIS and related documents, DOE adopted the 2006 NRC Final EIS as a Final EIS, issued in May 2011. The following is a summary of events that have taken place since the issuance of the NRC license in 2007 and the publication of the DOE adopted Final EIS:

- *Review of the Proposed Action:* DOE reviewed and concluded that the action encompassed in the USEC Inc. loan guarantee application was substantially the same as the proposed action analyzed in the NRC Final EIS.
- *Activity at the ACP Facility since publication of the NRC Final EIS:* In May 2007, USEC Inc. started construction at the ACP site, including: building the balance of the plant, including installation of electric, telecommunications, and cooling water distribution systems; preparing the process building floor for centrifuge machine mounts; preparing the recycle assembly equipment; constructing a new boiler building; and refurbishing the feed and withdrawal facility. In August 2007, USEC Inc. began the lead cascade test program; the program is currently focused on technology demonstration activities.
- *Additional Security Analysis:* In April 2009, NRC accepted the Integrated Safety Analysis provided by USEC Inc. In June 2009, DOE staff reviewed the information and confirmed that the consequences of potential terrorist threats are adequately analyzed.
- *Updated Portsmouth Emissions Data:* DOE examined the most recent airborne radiological emissions data from the 2009 Portsmouth Annual Site Environmental Report and compared it to data from the NRC Final EIS. DOE determined that the overall airborne radiological emissions have decreased at the site, due to USEC Inc. ceasing uranium enrichment operations at the gaseous diffusion plant in May 2001. Since there was a decrease, DOE determined that there is no need to update the current Final EIS for this area.
- *ACHP Consultation:* DOE is continuing consultation regarding its Section 106 responsibilities under the National Historic Preservation Act (NHPA). Although DOE's Federal action is different than NRC's action, DOE's action does not alter the undertaking that has been subject to Section 106 review. Therefore, the Final EIS concluded that DOE's Section 106 responsibilities have been satisfied.

While we appreciate that many of our initial concerns were resolved in the January 3, 2007 letter from NRC, some issues remain. Because DOE adopted NRC's Final EIS without changes, we retain the following concerns:

1. (Comment 014-9, Page J-15) EPA retains its concerns regarding the decommissioning of the Paducah Gaseous Diffusion Plant. While we appreciate that the cessation of uranium enrichment operations at Paducah was considered in the Final EIS, we continue to recommend that the environmental impact of decommissioning of the Paducah plant be included in the adopted Final EIS. Since the scope of the EIS included cessation of uranium enrichment operations at the Paducah Plant, the subsequent decommissioning is a connected action under NEPA. As outlined in the EIS, the start of ACP's uranium enrichment operations and the cessation of uranium enrichment operations at the Paducah Plant are closely related. The indirect and cumulative impacts analysis in the Final EIS is incomplete, because it does not include impacts caused by decommissioning and related activities at the Paducah Plant.

2. The Final EIS indicates that Indiana Bat habitat exists in the project area, but no individuals were located during surveys in 1994 and 1996. Because of the length of time that has passed since the surveys, the issuance of the NRC Final EIS in 2006 and the issuance of the current Final EIS, we recommend additional coordination with the U.S. Fish and Wildlife Service to ensure that Indiana Bat are not using this habitat.
3. EPA remains concerned about the use of dated annual radiological emissions data in the NRC Final EIS. We appreciate the updated status of the radiological data, from 2002 and 2003 data in the NRC EIS to 2009 data mentioned in the summary of the current EIS. However, these numbers should be updated throughout the entire document, regardless of trend in data.

Because of the number of issues that were addressed in the January 3, 2007 letter, the letter should have been included in the DOE's adopted Final EIS. While the letter is already part of the public record, DOE would have benefitted from including it in their adoption of the Final EIS. We have attached the letter, as it serves as the basis for our previous comments being resolved. Based on the above-mentioned letter from NRC, we are no longer concerned with:

- Compliance with the *National Emission Standards for Emissions of Radionuclides Other Than Radon from Department of Energy Facilities*.
- The applicability of the purpose and need statement.
- The applicant's need to enrich uranium up to 10% by weight.
- The classification of depleted uranium as low-level waste.
- Capacity of the Piketon depleted uranium conversion facility.
- Monitoring for transuranics that might contaminate the feed material.
- Cumulative impacts to Little Beaver Creek.
- Construction-related diesel emissions.

Thank you for the opportunity to comment on this document. Please send us the ROD once it is signed. If you have any questions or wish to discuss any aspect of this document, please contact Michael Murphy (for radiation-related issues) at 312-353-6686, Eugene Jablonowski (for Superfund and Emergency Response related issues) at 312-886-4591, or Elizabeth Poole (for NEPA-related issues) at 312-353-2087.

Sincerely,

A handwritten signature in black ink, appearing to read "Kenneth A. Westlake". The signature is fluid and cursive, with a large, stylized initial "K".

Kenneth A. Westlake, Chief
NEPA Implementation Section
Office of Enforcement and Compliance Assurance

Enclosure: January 3, 2007 letter from NRC to EPA

January 3, 2007

Mr. Kenneth A. Westlake, Chief
NEPA Implementation Section
Office of Science, Ecosystems, and Communities
77 West Jackson Boulevard
U. S. Environmental Protection Agency, Region 5
Chicago, IL 60604-3590

SUBJECT: RESPONSE TO COMMENTS, FINAL ENVIRONMENTAL IMPACT
STATEMENT FOR THE PROPOSED AMERICAN CENTRIFUGE PLANT

Dear Mr. Westlake:

By letter dated June 19, 2006, the U.S. Environmental Protection Agency (EPA) provided comments to the U.S. Nuclear Regulatory Commission (NRC) staff regarding the Final Environmental Impact Statement (EIS) for the Proposed American Centrifuge Plant, Pike County, Ohio. In its comments, EPA indicated that while numerous comments had been resolved from the draft EIS, four main concerns existed regarding requirements under the *National Emissions Standards for Emissions of Radionuclides Other Than Radon from Department of Energy Facilities*, capacity of the Department of Energy's planned depleted uranium hexafluoride conversion facility, proposed mitigation measures, and cumulative impact analysis for Little Beaver Creek. Detailed responses to these primary concerns as well as the other comments EPA provided are attached.

We appreciate your comments regarding USEC Inc.'s proposed American Centrifuge Plant and the NRC's environmental review. If you have any questions regarding these responses or other related matters, please contact Matthew Blevins at: 301-415-7684 or by e-mail at: mx66@nrc.gov.

Sincerely,

/RA/

B. Jennifer Davis, Branch Chief
Environmental Review Branch
Division of Waste Management
and Environmental Protection
Office of Federal and State Materials
and Environmental Management Programs

Docket No.: 70-7004

Enclosure:
Responses to U.S. EPA Comments
on the Final EIS

January 3, 2007

Mr. Kenneth A. Westlake, Chief
NEPA Implementation Section
Office of Science, Ecosystems, and Communities
77 West Jackson Boulevard
U. S. Environmental Protection Agency, Region 5
Chicago, IL 60604-3590

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**Responses to U.S. Environmental Protection Agency Comments on the
Final Environmental Impact Statement for the
Proposed American Centrifuge Plant, Pike County, Ohio**

EPA General Comment: 1ST PARAGRAPH

The Final Environmental Impact Statement (FEIS) disregards the *National Emissions Standards for Emissions of Radionuclides Other Than Radon From Department of Energy Facilities*, found at Title 40 of the Code of Federal Regulations, Part 61, Subpart H (40 CFR 61, Subpart H). The FEIS disregards the regulation's compliance requirements for public exposure.

EPA General Comment: 2ND PARAGRAPH

The FEIS appears to misrepresent the requirements of 40 CFR 61, Subpart H for compliance demonstration and the data that is required to be measured and used in compliance demonstrations.

EPA General Comment: 3RD PARAGRAPH

The FEIS does not consider requirements for U.S. Environmental Protection Agency (U.S. EPA) Approval to Construct or Modify Sources, under 40 CFR 61, Subparts A and H, as part of the requirements for the American Centrifuge Plant (ACP) to become operational.

NRC Response:

Although the EPA regulations are discussed at several points with the FEIS, NRC nevertheless agrees that Table 1-3 of the FEIS could have been more explicit in referencing the requirements of 40 CFR Subpart A and H (particularly section 61.94).

However, please note the numerous other references to these requirements in the FEIS. For example, on page 4-11 the FEIS indicated that "Airborne radiological emissions from the proposed ACP would be regulated by the U.S. EPA under 40 CFR Part 61 Subpart H, the National Emissions Standards for Hazardous Air Pollutants." The FEIS further states the applicability of the National Emission Standards for Hazardous Air Pollutants regulations of 40 CFR Part 61 in several other locations. EPA is referred to Section 4.2.4.1, 4.2.4.2, Section 4.2.12.3, and Section 4.3.2 which specifically reference the appropriate National Emission Standards for Hazardous Air Pollutants regulations of 40 CFR 61 Subpart H.

Of course, the applicant will need to meet these EPA requirements in order to construct and operate its proposed facility.

EPA General Comment: 4TH PARAGRAPH

This FEIS fails to include issues relating to (1) evaluations of terrorist attacks to this facility or (2) the proposed actions that would deter this from taking place, in the project scope.

NRC Response:

Currently there is a case pending before the U.S. Supreme Court regarding this issue. NRC is continuing to evaluate this issue as it relates to the scope of its NEPA analyses.

In the FEIS, NRC evaluates and describes the potential impacts of accidental releases of radionuclides as well as several other hazardous materials. Operation of the proposed ACP would involve risks to workers, the public, and the environment from potential accidents. The

NRC's regulations in 10 CFR Part 70, Subpart H, (Additional Requirements for Certain Licensees Authorized to Possess a Critical Mass of Special Nuclear Material), require that each applicant or licensee evaluate, in an Integrated Safety Analysis, its compliance with certain performance requirements. Appendix H of this EIS summarizes the methods and results used by NRC staff to independently evaluate the consequences of potential accidents identified in USEC's Integrated Safety Analysis. The accidents evaluated by the staff are a reasonable range of the types of accidents and releases that are possible at the proposed ACP.

The consequences that have been described could result from accidental or deliberate system failure, with deliberate failures coming from sabotage or terrorism and accidental ones resulting from design or construction flaws, human errors, natural events, etc. The fact that this EIS considers both minor and major releases helps ensure that the likely results of a terrorist action are already captured within the EIS. While the probability of a terrorist or sabotage event cannot be predicted, the types of releases and consequences analysed encompass a reasonable range of consequences that could result from a terrorist or sabotage incident.

The NRC is devoting substantial time and attention to terrorism-related matters. For example, as part of fulfilling its mission to protect public health and safety and common defense and security pursuant to the Atomic Energy Act, the NRC staff is conducting vulnerability assessments of commercial uses of radioactive material. The NRC has assessed potential vulnerabilities of radioactive dispersal devices, dirty bombs, and other diversion type activities. The NRC has issued interim compensatory measures and a number of other orders imposing enhanced security requirements on its licensees. Also, the NRC has acted to increase security awareness in its applicants. These activities are intended to prevent or mitigate the impacts of any attempted terrorist acts.

EPA General Comment: 5TH PARAGRAPH

We remain concerned about the cancer rate data provided in the FEIS. The FEIS provides estimated latent cancer fatality data, but does not include non-fatal cancer rate data. Therefore, we requested that the FEIS include non-fatal cancer rate data. The U.S. Nuclear Regulatory Commission (NRC) response in the FEIS states that the radiological analysis used is designed to identify ACP's impact on occupational and public health by comparing expected radiation doses and risks to applicable regulatory limits. NRC defines the dose and risk estimates below these standards as small. However, from a NEPA standpoint, the FEIS still should have publicly disclosed all dose and risk estimates, regardless of the magnitude.

NRC Response:

The radiological analysis used in the EIS is designed to identify the impact of the facility on occupational and public health. The analysis does so by comparing the expected radiation doses and risks to the applicable regulatory limits on dose and risk. The dose and risk limits defined by the cognizant Agencies are based on the protection of public health. The dose and risk estimates below these standards are therefore considered to have small impacts upon occupational or public health. The risk standards used typically represent risk of fatality, so that is the risk data used in the EIS when risks are considered as the applicable standard.

In general, predicting cancer morbidity and mortality ratios is strongly a function of the isotope and the energy released from the isotope. However, EPA has published some documents that can provide general references for a relation between cancer mortality and morbidity. One

example is the ISCORS guide on risk vs Total Effective Dose Equivalent (TEDE), which states: "For external sources of low linear energy transfer (LET) radiation that provide nearly uniform irradiation of the body, the risk of cancer incidence (morbidity) and mortality as a function of external dose can be closely approximated using the conversion factors of 8×10^{-2} risk per sievert and 6×10^{-2} risk per sievert respectively." (Reference: Interagency Steering Committee on Radiation Standards Technical Report 2002-2, Final Report).

The above ratio is fairly consistent with published EPA information. In report 402-R-93-076, EPA states that the risk for premature death from a cancer induced by exposure to uniform, whole body radiation is 5.1×10^{-2} per Gy; the risk of cancer induction is given in the report as 7.6×10^{-2} risk per Gy. (Reference: Estimating Radiogenic Cancer Risks. EPA Report 402-R-93-076. 1999).

Both of the above values are primarily applicable for exposure to uniform whole body radiation. For the purposes of the EIS, the single greatest expected exposures to radiation are external exposures to gamma radiation, so these values above should be reasonably applicable. A typical ratio of nonfatal-to-fatal cancers based on the above data yields a cancer morbidity risk approximately 1.5 times the risk of cancer mortality.

EPA General Comment: 6th PARAGRAPH

We remain concerned about dated annual radiological emission data, for the Portsmouth Reservation, used in the draft environmental impact statement (DEIS). Specifically, we stated that the DEIS, dated August, 2005, should have referenced the most current annual radiological emissions data—for 2004, in this case. NRC responded that since the 2002 and 2003 site radiological emissions reports show similar results, then the 2004 data is not expected to significantly alter the values in the DEIS. However, the FEIS does not confirm this assumption. Since the DEIS uses dated annual radiological data, NRC's determination for the proposed project is not based on the most current conditions.

NRC Response:

The equivalent data for 2004 had not, at the time of the FEIS, been published by DOE, so the most recent available data was from 2003. To our knowledge, that data is still not available.

It should be noted, however, that the 2002 and 2003 site radiological emissions reports show similar results, so the 2004 data are not expected to significantly alter the values in the FEIS. The site environmental reports supplied two sets of important data as input to the FEIS; the site radiological soil concentrations and the site thermoluminescent dosimeter readings. Since there have been no operations at the site that would produce significant changes in either the soil radiological concentrations or the thermoluminescent dosimeter readings, it is reasonable to assume that the 2004 data would not change enough to affect the conclusions in the EIS. The reports from both 2002 and 2003 were compared to verify that no significant changes were occurring in the data being used as input to the FEIS.

EPA Comment:

Purpose and need of the proposed project

1) (Comment 014-5, Page J-12) The justification of the rationale used for the purpose and need of the proposed project remains insufficient. The FEIS states that the proposed ACP is needed because only one uranium enrichment plant currently operates in the United States, the

Paducah, Kentucky Gaseous Diffusion Plant (Paducah Plant). A supply disruption with the Paducah Plant would leave the nation's commercial nuclear reactors fully dependent on foreign sources for enriched uranium—a situation which could impact national security. However, the FEIS also states that the Paducah Plant would be shut down, decontaminated, and decommissioned after ACP begins operating. ACP would not provide for redundancy and, therefore would not satisfy the national security facet of the purpose and need of the proposed project; the project would merely replace, instead of supplement, the nation's only operating uranium enrichment plant. In response, the FEIS states that NRC is evaluating the Louisiana Energy Services' National Enrichment Facility as part of a separate proposed action. It seems as if the national security facet of the purpose and need would be more suitable for the environmental review of this second operating uranium enrichment facility, as opposed to ACP.

NRC Response:

Pursuant to both the NRC's and the CEQ's regulations implementing NEPA as well as relevant case law, the purpose and need analysis is designed to identify the range of reasonable alternatives to the proposed project and analyze those alternatives. This analysis and identification is the heart of the EIS (10 C.F.R. Part 51, Appendix A; 40 C.F.R. 1502.13). The FEIS Purpose and Need description is clear regarding the proposed ACP's providing a more reliable (i.e., domestic) and less expensive supply of enriched uranium. In general, the proposed ACP is less susceptible to disruption than the existing Paducah plant because of its use of improved and updated technology. It is also noted that the ACP would provide redundancy with the recently licensed LES facility in New Mexico.

EPA Comment:

2) (Comment 014-6, Page J-12) We remain concerned about the lack of a justification in the FEIS for the need to enrich uranium up to 10% by weight of uranium-235. According to the FEIS, the license issued by NRC would authorize USEC Inc. (USEC) to produce enriched uranium up to 10% by weight of uranium-235. However, the FEIS also states that most power plants use enriched uranium with less than 5.5% of uranium-235 by weight, and that it would be unlikely for USEC to enrich uranium up to the higher weight. Finally, the DEIS states that, of the cylinders used to ship enriched uranium, none of them are certified to ship uranium enriched to higher than 5% by weight of uranium-235. Given that it would not be feasible for USEC to enrich uranium above 5% by weight of uranium-235, for civilian use, NRC should have explained why the proposed license would authorize a higher level of enrichment. The FEIS states that USEC applied for a license for a higher enrichment level, in order to maintain operational flexibility for future business opportunities. However, the FEIS does not publicly disclose what these future business opportunities are, nor does the FEIS document an environmental review of them. Therefore, if and when USEC requests NRC's approval to enrich uranium above 5% by weight of uranium-235, NRC should conduct a reevaluation of this proposed activity under the National Environmental Policy Act (NEPA).

NRC Response:

While USEC may not typically be enriching uranium to 10%, the NRC is required to evaluate both the safety and environmental impacts of the applicant's proposal. The FEIS has documented the impacts of enriching up to 10 percent by identifying and quantifying aspects of the impacts that are different from the more typical enrichment level of 5%. The results of the analysis indicate that enriching uranium up to 5 percent would actually result in greater environmental impacts for many resource areas (e.g., radiological dose (pages 4-65 and 4-69;

and transportation impacts from accidents (page 4-54) because of the higher volume of throughput material (i.e., more raw uranium going through the process).

EPA Comment:

Project scope

3) (Comment 014-5, (Page J-12) The scope of the FEIS does not include decommissioning and related activities of the Paducah, Kentucky Gas Diffusion Plant. The FEIS states that after uranium enrichment operations begin at ACP, the Paducah Plant would cease its uranium enrichment operations.

According to the FEIS: *"For the purpose of this analysis, cessation of uranium enrichment operations at Paducah would include stopping uranium enrichment plant operations, but would not include decommissioning of the Paducah Gaseous Diffusion Plant, changes to any other activities at that site, or any alternative uses of that site in the future. Those other actions at Paducah would be the subject of other decisions and other environmental reviews."*

The scope of FEIS should have included the cessation of all uranium enrichment operations at the Paducah Plant, because it is a connected action under NEPA. The start ACP's uranium enrichment operations and the cessation of uranium enrichment operations at the Paducah Plant are closely related—the Paducah Plant's operations would not cease if ACP's operations did not start. The indirect and cumulative impact analysis in the FEIS is incomplete, because it does not include impacts caused by decommissioning and related activities of the Paducah Plant.

NRC Response:

The FEIS does include a description of the environmental impacts of cessation of operations at the Paducah, Kentucky Gaseous Diffusion Plant in Section 4.2 "Impacts of the Proposed Action." For each of the resource areas identified, we evaluate environmental impacts of the proposed action and no action alternatives, as well as the cessation of uranium enrichment operations at the Paducah Plant. Therefore we believe that analyzing the cessation of operations at the Paducah plant in Section 4.3 "Cumulative Impacts" is redundant and unnecessary.

Additionally, the NRC has no legal authority over the future decommissioning of the Piketon or Paducah gaseous diffusion plants. Further, the NRC could not reasonably perform an environmental analysis of potential future actions at either Department of Energy facility. The decommissioning process at both gaseous diffusion plants will entail a lengthy process subject to numerous requirements, including NEPA and the Department of Energy will lead this clean-up effort.

EPA Comment:

Product Management

4) (Comment 014-23, Page J-24) Page 4-76 of the FEIS states a requirement that the U.S. Department of Energy (DOE) "accept low-level waste, including depleted uranium that has been determined to be low-level waste, for disposal upon the request and reimbursement of costs by USEC." NRC actually asserted its authority in its determination that depleted uranium was low-level waste in a January 18, 2005 NRC Memorandum and Order on the subject, when NRC explicitly determined that depleted uranium is a low-level waste. Further, NRC also stated that, "Although the Commission itself may not have explicitly declared previously, as a matter of law,

that depleted uranium is a form of low-level radioactive waste, it has long been understood within the NRC to fall within the low-level radioactive waste umbrella." Therefore, as it applies to depleted uranium, the "determination" is really a technical matter as to whether a given uranium tail material is depleted (automatically making it a low-level waste if it is), not a specific determination or administrative decision that a depleted uranium product is a low-level waste.

NRC Response:

*The January 18, 2205 Commission Order states: "Consistent with the Low-Level Waste Policy Act, the Commission finds that depleted uranium, **assuming it is not treated as a resource**, is appropriately categorized as a low-level waste." (emphasis added). In other words depleted uranium must first be designated as a waste by either USEC or the Department of Energy, and if so designated, would be appropriately categorized as a low-level waste.*

For purposes of the FEIS, the NRC assumed that all depleted uranium would ultimately be designated as a waste. In Section 4.2.13.2, "Facility Operations - Depleted Uranium" the FEIS presents the impacts of the conversion and disposal of the entire inventory of depleted uranium.

EPA Comment:

5) (Comment 014-24, Page J-25) Depleted uranium hexafluoride (DUF6) is a corrosive and reactive hazardous material until converted into a more stable form for long-term storage and disposal. DOE has plans to build a DUF6 conversion facility at Portsmouth to process the 450,000 metric tons of DUF6 generated from 50 years of previous uranium enrichment activities at the site, expected to operate until 2024. The ACP is expected to operate until 2039 and generate 571,000 metric tons of DUF6.

DOE is likely to be the only entity performing DUF6 conversion on this large of a scale due to their obligation to accept DUF6 tails from generators under the USEC Privatization Act. If DOE is to process all of the DUF6 from past operations, and process all of the ACP-generated DUF6, then, as NRC's response to comments state, DOE would have to install additional conversion lines, or extend the DUF6 conversion facility's operating life from 2024 to 2077. What this amounts to is that if DOE doesn't have the adequate capacity to process DUF6 at rates adequate to address legacy inventories and the ACP's DUF6 generation rate, corrosive and reactive hazardous DUF6 may require storage and management for up to 38 years until converted into a safe and stable form.

The ACP's projected generation of 571,000 metric tons of corrosive and hazardous DUF6 will further subject DOE to the Resource Conservation and Recovery Act (RCRA). DUF6 is a hazardous material and, DOE has had a difficult enough time trying to figure out what to do with the 450,000 metric tons of DUF6 already on the Portsmouth site. The current 450,000 metric ton inventory grew over a 50-year because there was no consideration for proper waste management as part of the total uranium enrichment process. Now in 2006, DOE stands to repeat the same waste management scenario that it began in 1951.

DOE should address the need for sufficient additional capacity (added conversion lines) to address the ACP's DUF6 waste streams, both historic and projected. Otherwise a situation will slowly develop where the federal government is managing and processing DUF6 38 years beyond the cessation of the ACP's operation, longer than the operational period of the ACP itself.

U.S. EPA questions whether the DOE'S "Final Environmental Impact Statement for Construction and Operation of a Depleted Uranium Hexafluoride Conversion Facility at the Portsmouth, Ohio Site" (DOE/EIS-0360, 2004) was adequate to support all of the conversion activities and the sheer volume of DUF₆ (maybe 1,000,000 metric tons total) that DOE'S conversion facility could be expected to support, and for a period of time extending as far as 2077. DOE is aware of the possibility that the conversion facility being constructed at Piketon may need to operate longer than initially planned in order to process waste transferred to DOE from the ACP. DOE acknowledges in their EIS for the conversion facility that "...it is reasonable to assume that the conversion facilities could be operated longer than specified in the current plans in order to convert this material." (DOE, 2004).

NRC Response:

The Piketon conversion facility is planned to operate for 18 years beginning in 2006. The existing inventory planned for conversion is 243,000 metric tons of DUF₆ (DOE 2004). The projected maximum amount of DUF₆ generated by the ACP represents a significant increase in the current inventory of approximately 243,000 metric tons. Converting the DUF₆ from the ACP will require DOE to significantly extend the life of the conversion facility, or to construct a second conversion facility on the site. DOE has maintained that, with routine facility and equipment maintenance, periodic equipment replacements, or upgrades, the conversion facility could be operated safely beyond the 18-year planned life-time period to process the additional DUF₆ from the ACP. In addition, DOE indicates the estimated impacts that would occur from prior conversion facility operations would remain the same when processing the proposed ACP wastes. The overall cumulative impacts from the operation of the conversion facility would extend proportionately with the increased life of the facility. (DOE, 2004).

Further, DOE is providing information on anticipated costs for treatment and disposal DUF₆ to both LES and USEC. As part of its licensing process, the NRC reviews the applicant's decommissioning funding plan and financial assurance mechanisms to ensure that there will be sufficient funding to cover all activities at the time of decommissioning. This review is described in the Safety Evaluation Report prepared by the NRC during the licensing process.

(Reference: DOE, 2004. "Final Environmental Impact Statement for Construction and Operation of a Depleted Uranium Hexafluoride Conversion Facility at the Portsmouth, Ohio Site." DOE/EIS-0360. U.S. Department of Energy, Office of Environmental Management. June 2004.)

EPA Comment:

6) (Comment 014-25, Page J-27) Section 3113(a) of the USEC Privatization Act states that DOE, at the request of the generator, shall accept for disposal depleted uranium if it were ultimately determined to be low-level radioactive waste. NRC subsequently asserted its authority in its determination that depleted uranium was low-level waste in a January 18, 2005 NRC Memorandum and Order on the subject, when NRC explicitly determined and stated that depleted uranium is a low-level waste.

10 CFR Part 76, NRC's regulations on the "Certification of Gaseous Diffusion Plants," establishes requirements that govern the operation of those portions of the Portsmouth and Paducah Gaseous Diffusion Plants located in Piketon, Ohio, and Paducah Kentucky,

respectively, that are leased by the USEC. Part 76.4 provides a definition of depleted uranium that would seem to apply to those facilities.

This comment stemmed from consideration of past instances where it was difficult for DOE to dispose of uranium materials due to a lack of consensus between DOE and USEC as to whether it was a waste or product. For purposes of the FEIS, NRC assumed that all of the DUF_6 is waste. No credit is taken for any of the material possibly being considered a resource. Therefore, the analysis presents the most conservative scenario when describing potential environmental impacts associated with waste treatment and disposal.

NRC Response:

Under Section 3113 of the USEC Privatization Act of 1996 (Public Law 104-134), DOE, "at the request of the generator, shall accept for disposal low-level radioactive waste, including depleted uranium, if it is ultimately determined to be low-level radioactive waste, generated by any person licensed by the Nuclear Regulatory Commission to operate a uranium enrichment facility." On January 18, 2005, the Commission issued an order stating that depleted uranium can be categorized as a low-level radioactive waste. Therefore, at USEC's request, DOE is required under the USEC Privatization Act of 1996 to accept the depleted uranium generated by the proposed ACP.

EPA Comment:

7) (Comment 014-26, Page J-43) Considering that NRC has already ruled that depleted uranium is considered a form of low-level radioactive waste, NRC should then state that a whether a depleted uranium material is a low-level waste is based on its U-235 assay relative to natural concentrations, rather than any other administrative determinations. The FEIS doesn't properly describe a complete basis for which DOE is obligated to accept depleted uranium for conversion and/or disposal.

NRC Response:

Under Section 3113 of the USEC Privatization Act of 1996 (Public Law 104-134), DOE, "at the request of the generator, shall accept for disposal low-level radioactive waste, including depleted uranium, if it is ultimately determined to be low-level radioactive waste, generated by any person licensed by the Nuclear Regulatory Commission to operate a uranium enrichment facility." On January 18, 2005, the Commission issued an order stating that depleted uranium can be categorized as a low-level radioactive waste. Therefore, at USEC's request, DOE is required under the USEC Privatization Act of 1996 to accept the depleted uranium generated by the proposed ACP.

EPA Comment:

Proposed Monitoring Scheme

8) (Comment 014-31, Page J-23) While NRC states an awareness that transuranics will be introduced into the ACP, even at trace quantities, NRC does not expect USEC to perform routine transuranic monitoring, except for technetium-99 because of the isotope's "historic presence on the site." NRC's selection of isotopes for effluent monitoring appears to be arbitrary. NRC should be reminded that under U.S. EPA National Emission Standards for Hazardous Air Pollutants (NESHAP) Subpart H or I regulations, a facility must measure radionuclide emission rates from stacks or vents that have the potential to emit enough radionuclides to cause an effective dose equivalent of more than 0.1 mrem per year. At each of

those release points, the facility must measure all radionuclides that could contribute more than 0.01 mrem per year to the dose from that release point. Other potential release points must be measured periodically to assure that emissions are below these levels. Finally, "Potential" emission rates must be estimated by assuming normal operation with no pollution control equipment.

We understand that the "historic presence" of technetium-99 at Portsmouth was due to the introduction of recycled feed into the gaseous diffusion plant (an enrichment facility) and that DOE routinely monitored for a variety of radionuclide effluents ranging from uranium isotopes to technetium and transuranic isotopes that were contaminants in the feed. Considering U.S. EPA's NESHAP, and that feed materials may originate from a variety of sources not contemplated by the EIS (such as foreign sources), we recommend that transuranic monitoring should be either evaluated or performed routinely during the ACP's entire operational period. It may also be a good business practice to demonstrate the control, or "trace" presence, of transuranic emissions from the ACP.

NRC Response:

USEC expects to use natural uranium as feedstock to the enrichment process in the proposed ACP. Pages 4-15 and 6-3 of the FEIS indicate that USEC recognizes that other radionuclides could contaminate the feed material for the ACP (e.g., U-236 and TC-99). Therefore, USEC has agreed to continue to monitor for these additional contaminants during the operation life of the facility.

As noted in section 4.2.4.2 of the FEIS, in those instances where feedstock is used that is not derived from natural uranium, the ACP will only accept feedstock that meets the requirements of the ASTM standard specification for uranium hexafluoride for enrichment (ASTM C 787-06). This standard puts limits on the concentrations of other isotopes permitted in the feedstock. The selection of isotopes for monitoring is based upon the recognition of the requirements of the ASTM standard for isotopic content in the feedstock. It is extremely unlikely that these very low concentrations of transuranic isotopes could be released in sufficient quantity to produce a dose in excess of 0.1 mrem per year, as the estimated maximum dose from airborne emissions of uranium is 0.3 millirem per year (Table 4-20).

We agree with the fact that ACP (and DOE as the site owner) should continue a monitoring program that includes transuranic and other non-uranium isotopes. The Portsmouth site environmental reports reviewed as part of this EIS indicate that analyses for non-uranium isotopes are included as part of the site environmental monitoring program.

Additionally, since USEC has stated that the feedstock used at the ACP will meet the standards set in ASTM C 787-06, USEC's QA program should be performing quality verification activities regarding the nature of the feedstock. As long as the feedstock does not contain transuranics the ACP should not be releasing them from enrichment operations. The control of transuranic emissions is then effectively done on the front end by ensuring the quality of the feedstock, not by effluent control measures on the back end.

EPA Comment:

9) (Comment 014-32, Page J-28) In selecting effluents for monitoring, NRC selected those that are historic contaminants on the Portsmouth reservation. We recommend that NRC select for

analysis those radionuclides that contribute the highest dose, and not necessarily make assumptions based on past feed stock and their radiological attributes.

NRC Response:

Based upon the feedstock requirements in the ASTM standard mentioned above in Item 8, and the concentrations of isotopes that exist on the site from past operations, the isotopes selected for the dose analysis in the EIS were those isotopes expected to be the primary contributors to dose over the operating life of the ACP. We believe that the isotopes in question will account for over 99 percent of the expected dose from airborne releases. In particular, since transuranic isotopes are not called out in the specification for UF₆ feed, and USEC does not plan to accept feed that does not meet the ASTM requirements, there is no basis from which to generate a release source from transuranic isotopes during operation of the ACP.

EPA Comment:

Proposed Mitigation

10) (Comment 014-34, Page J-54) We urge NRC to implement its proposed mitigation measures for fine particulate matter emissions from construction equipment to reduce air quality impacts. According to the FEIS, site preparation and construction activities may generate fine particulate emissions exceeding the corresponding National Ambient Air Quality Standard (NAAQS). The NRC staff determined that the majority of fine particulate emissions emitted during construction would come from construction vehicle exhaust. Therefore, in order to reduce particulate emissions from construction vehicle exhaust, NRC recommended that USEC: (1) use Tier 2 construction-related vehicles, which would reduce diesel particulate emissions by about 40%, and (2) use ultra-low sulfur diesel fuel. In our October 31, 2005 comment letter, we urged NRC to establish these mitigation measures in the construction contracts for the proposed project, and to document these mitigation measures in the Record of Decision (ROD). However, NRC responded that it doesn't believe that inclusion of these mitigation measures as an ACP license condition is warranted, because (1) the resulting percentage reduction in particulate matter is expected to be small, and (2) the site is located in an area that is exempt from restrictions from fugitive dust. We respectfully disagree with this position, NRC expects the implementation of the proposed mitigation measures to (1) reduce fine particulate matter concentrations below the NAAQS, and (2) reduce the characterization of non-radiological air quality impacts from site preparation and construction from "MODERATE" to "SMALL." Therefore, we believe that the NRC should reconsider its stance, because of the apparent significance of implementing the proposed mitigation measures.

NRC Response:

The predicted annual average concentration of particulate matter with a mean diameter of 2.5 micrometers or less is 16.1 micrograms per cubic meter, which slightly exceeds the National Ambient Air Quality Standard of 15 micrograms per cubic meter up to a distance of 1,000 meters (3,280 feet) beyond the fence line. While emissions from soil disturbance and burning of fossil fuel associated with proposed ACP site preparation and construction contribute to this exceedance, the vast majority of the exceedance is the result of high background concentrations 13.8 micrograms per cubic meter in the area. To avoid nuisance conditions and particulate matter concerns, USEC intends to use dust suppression techniques (e.g., water sprays and speed limits on dirt roadways) to mitigate releases of dust during excavation under dry conditions. As a result, the non-radiological air quality impacts from site preparation and construction of the proposed ACP facility are considered MODERATE.

After further discussion, USEC has committed to utilize ultra-low sulfur diesel fuel and Tier 2 compliant construction equipment with horsepower ratings of 50 horsepower or more, to the extent practicable. These mitigation measures would reduce the PM2.5 levels to below the regulatory threshold and would therefore reduce the air quality construction impacts to a SMALL level. (Letter to J.R. Strosnider, NRC. "Information Concerning Fine Particulate Emission Mitigation for the American Centrifuge Plant." USEC, Inc. AET 06-0107, October 13, 2006.)

EPA Comment:

Cumulative Impacts

11) (Comment 014-40-1, Page J-78) We remain concerned about cumulative erosion and sedimentation impacts which could be caused by construction of Cylinder Storage Yard X-745H. According to the DEIS, the cylinder storage yard would be constructed in an area characterized by steep slopes. The DEIS states, "During excavation and grading, the steep slopes would be more susceptible to soil erosion, and the streams at the bottom of the slopes may receive an increased amount of silt." Construction activities would be close to Little Beaver Creek, an impaired stream. Presently, siltation and sedimentation are two causes of the creek's impairment. Additional erosion and sedimentation from the construction of the cylinder storage yard could result in cumulative impacts to Little Beaver Creek. Our comments on the DEIS requested that NRC perform a cumulative impact analysis for this case. Such an analysis should have been included in the FEIS. Instead, the FEIS states, "In completing the cumulative impact analysis, NRC evaluated "the other activities occurring on the Portsmouth reservation and their specific location as listed in Table 4.24. No changes to the cumulative impact analysis are warranted, because no other large scale land disturbing activities with the potential to increase erosion or sedimentation in Little Beaver Creek were identified." Since NRC only accounts for activities within its jurisdiction, the cumulative impact analysis in the ACP project is incomplete. A comprehensive cumulative impact analysis would have accounted for all activities which contribute to the impaired status of Little Beaver Creek—inside and outside the Portsmouth Reservation. As it stands, the FEIS does not provide a cumulative impact analysis for Little Beaver Creek and the creek's aquatic ecosystem.

NOTE: EPA provided the following information in an email dated October 5, 2006 regarding cumulative impacts and Little Beaver Creek.

In response to your comments, we have checked with OEPA about the status of Little Beaver Creek. OEPA sent us information showing that Little Beaver Creek is impaired. However, the creek's impairment is not caused by sedimentation or siltation, as we previously stated. Therefore, we retract the concerns (written in our comment letters for the DEIS and FEIS) about cumulative erosion and sedimentation impacts caused by the construction of Cylinder Storage Yard X-745H.

NRC Response:

As stated in the response to comment 014-40-1, NRC evaluated the potential site preparation and construction impacts on Little Beaver Creek and concluded that the impact would be small, as defined by NRC: "The environmental effects are not detectable or are so minor that they would neither destabilize nor noticeably alter any important attribute of the resource." NRC reached the conclusion of a small impact based on the fact that Cylinder Storage Yard X-745H would be located in a relatively flat upland area made up of grasslands and old fields.

Additionally, NRC considered implementation of the best management practices described in Section 4.2.5.1 on soil impacts, together with USEC's plan not to disturb the upland mixed hardwood forest and the riparian forest adjacent to the proposed cylinder yard (Section 4.2.7.1 pg 4-26) in concluding a small impact. Such measures would ensure the forested buffer area between the cylinder storage yard and Little Beaver Creek and its tributaries would be preserved, thereby reducing the level and amount of sedimentation that may reach Little Beaver Creek and its tributaries. In addition, the mitigation measures and best management practices that would be implemented would ensure that the construction of the Cylinder Storage Yard X-745H would not result in a notable direct or cumulative impact on Little Beaver Creek or contribute to its impairment as listed in the Ohio 303(d) list (List ID OH05060002 120).

In evaluating the cumulative impact on Little Beaver Creek and its tributaries, NRC reviewed the extent of Little Beaver Creek, of which the majority is on the DOE reservation, and other projects that may affect the creek. Because Little Beaver Creek is an intermittent stream upstream of the reservation (see Section 3.7.1), NRC limited its review of other large-scale construction projects on and in the immediate vicinity of the DOE reservation. NRC found that no other projects on or in the immediate vicinity of the DOE reservation would occur in close proximity to Little Beaver Creek other than ongoing monitoring activities in Quadrant IV; therefore, NRC concluded that there would be no additional impacts that would result in a cumulative impact on Beaver Creek. For the cumulative impact analysis, NRC focused on surface water quality of the onsite surface water features that would be affected by the proposed action and other activities occurring at the facility. In addition, NRC acknowledged that the construction of Cylinder Storage Yard X-745H, would be subject to EPA and State NPDES standards as well as DOE and NRC standards, which would further ensure that the construction of the storage yard would not result in a cumulative impact on Little Beaver Creek.

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